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MF Munken and MF Lagatun save 70 percent on fuel for the Flakk-Rørvik crossing compared with a diesel driven ferry of the same size due to a major focus on weight reduction. Photo: Geir Magne Sætre

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Together with Weber, GLAVA® is becoming a heavyweight in the supply of lightweight solutions for ships.

In Autumn 2018 Myklebust Shipyard completed building of the two hybrid ferries MF Munken and MF Lagatun, which now sail the route Flakk-Rørvik outside Trondheim. Commuters from Fosen and city dwellers holidaying along the coast can thus now take a much quieter, more environmentally friendly 25-minute trip across the Trondheim Fjord. A major reason for this is the ship's reduced weight, which helps make it possible to replace almost all fossil fuel use with electricity.

Multi Maritime in Førde designed the twin vessels for bus and ferry company FosenNamsos. For over 35 years Multi Maritime has designed vessels from passenger and car ferries to icebreakers and offshore service ships.

"Weight is an important parameter when it comes to ship design. Unnecessary weight high up in a vessel makes it less stable in rough seas. Ferries that run on batteries do not generate a lot of excess heat, so it's important to reduce loss of heat on board. The increased insulation thickness necessary on hybrid vessels, as compared with those running combustion engines, mean stricter demands in the choice of insulation regarding weight and insulation ability. Weight reduction is an important factor in our product choice, says Civil Engineer at Multi Maritime," Erik Fristad.



Even with a relatively small floor area, by using weber.floor 4680N Marine Light, this ship building project has saved almost four tons of weight. Photo: Geir Magne Sætre

Lower waste percentage gives better bottom line

On MF Munken and MF Lagatun the shape of the hull, propeller and heat and ventilation systems were designed for the lowest possible energy consumption. Saint-Gobain is represented by the brands GLAVA® and Weber.

From the GLAVA® range of products, GLAVA® Marine Roll 16, in both 50 and 100 mm thicknesses, U SeaProtect Roll 36 and Glavaflex roll, among others, have been used on these vessels.

“We supply as much as we can by roll instead of slab. When using a slab, there is 10-12 percent wastage due to fitting and cutting that has to be done on board during assembly. If a project has a scope of say 800 000 kroner, this means 80 000 kroner will go straight into the dustbin. Using a roll of material, the wastage is 3-5 percent. This goes straight to the bottom line, says Kjetil Bjørgen, Key Account Manager for Marine/Offshore at GLAVA® AS/Saint-Gobain.

Saving weight equivalent to eight cars

A roll also gives 40 percent more square meters per pallet compared with insulation supplied by slab. This simplifies and saves on everything from logistics and transport to warehousing at the shipyard, as well as the number of loads from the quay to the ship and further handling from the vessel to assembly.

In addition, all our products have a long fibre structure and lie in layers. In purely technical terms, this means in reality that all the structures on the ship have good acoustic solutions. The result is a very quiet ship!

Kjetil Bjørgen, Key Account Manager for Marine/offshore at GLAVA® AS/Saint-Gobain

On average, GLAVA's mineral wool solutions are 40-45 percent lighter compared with traditional mineral wool. Because an insulation package for a ferry can quickly amount to 30 000 kg in weight, this equates to a saving of 12 000 kg – or about eight cars – per crossing.

70 percent fuel reduction

Solutions were also chosen from the Weber range of products that contribute to significant weight reduction. Weber.floor 4680N Marine Light uses 48 percent less material compared with ordinary screed.

“Weber.floor 4680N Marine Light has market leading technical characteristics in the form of surface strength and flexibility. Even with a relatively small floor area, we have saved almost four tons on this project, which in turn results in more effective operations, says Birger Erstad, Sales Manager Marine/Offshore at Weber/Saint-Gobain.

The result of these measures is that Multi Maritime expects a total fuel reduction for MF Munken and MF Lagatun for the Flakk-Rørvik crossing of 70 percent compared with a diesel driven ferry of the same size.

Facts

MF Munken

Main Dimensions

- Length, over all: ~107.70 m
- Breadth, moulded: 16.80 m
- Depth, moulded main deck: 5.50 m
- Summer draft: ~4.00 m
- Cars: 130
- Passengers (incl. crew): 399 persons
- Gross tonnage: approx. 3850 GRT
- Class: DnV 1A1, CAR FERRY B, Battery (Power), E0, R4 (NOR)

Design: Multi Maritime

Yard: Myklebust Verft, Norway

Owner: FosenNamsos Sjø AS

MF Lagatun

Main dimensions:

- Length, over all: ~107.70 m
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GLAVA products

Products used in this project:

Glava Marine Roll 16 : 50 and 100 mm
 Glava Marine Roll 16 Alu, 50 mm
 Glava VVS Tape
 Seaprotect Tape G120
 Glass Fabric White G220
 U SeaProtect Roll 24 Alu1, 50 mm
 U SeaProtect Roll 36, 70 mm
 U SeaProtect Slab 56, 70 mm
 U SeaProtect Slab 76, 25 mm
 B Facing Composite Alu/Glass Cloth
 Glavaflex Roll
 Climpipe Section Alu2 – Glava Rørskål

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GLAVA® lightweight



Color Line focuses on weight reduction for hybrid vessel

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